

REMEDIATION OF LEAKING UNDERGROUND STORAGE TANKS (LUSTS) IN INDIAN COUNTRY

For eight years, the Bristol Alliance of Companies has held contracts with the United States Environmental Protection Agency's (U.S. EPA) Office of Solid Waste and Emergency Response (OSWER), Office of Underground Storage Tanks (OUST) for remediation of leaking and abandoned storage tanks on Native lands throughout the United States. At the time of Bristol's first award, in 2001, the EPA contract was the second-largest in history awarded to any Indian enterprise—and the first ever awarded to an Alaska Native-owned company.

In 2007, EPA awarded Bristol Environmental Remediation Services, LLC, a five-year contract. More recently, Bristol was awarded a three-year contract specific to EPA Region 8, in the midwestern U.S.

The contracts all support OUST, ensuring that leaking underground storage tanks (LUSTs) situated in Indian Country throughout the United States no longer pose a threat to human health or the environment.

The work includes evaluation of LUST-eligible sites, site assessment, site characterization, risk-based decision documents, remediation, and other technical support to EPA, such as performing financial audits, preparing public outreach materials, and providing oversight and enforcement of corrective action activities of responsible parties. To date, Bristol has visited or performed work at more than 250 sites on 24 reservations located throughout the Continental U.S.

Wherever possible, Bristol subcontracts services from local suppliers with an emphasis on Native-owned companies and small business support. Subcontractors may include

CURRENT EPA CONTRACTS (2009)

TYPE OF CONTRACTS: Cost Reimbursable Term
CUSTOMER: U.S. Environmental Protection Agency
 Office of Solid Waste and Emergency Response,
 Office of Underground Storage Tanks

CONTRACT NUMBERS:

EP-W-07-104 EP-W-08-073

LOCATION:

Multiple Regions/U.S. EPA Region 8

AMOUNT:

\$15 million \$1 million

AWARD DATE:

October 2007 September 2008

COMPLETION DATE:

Ongoing Ongoing

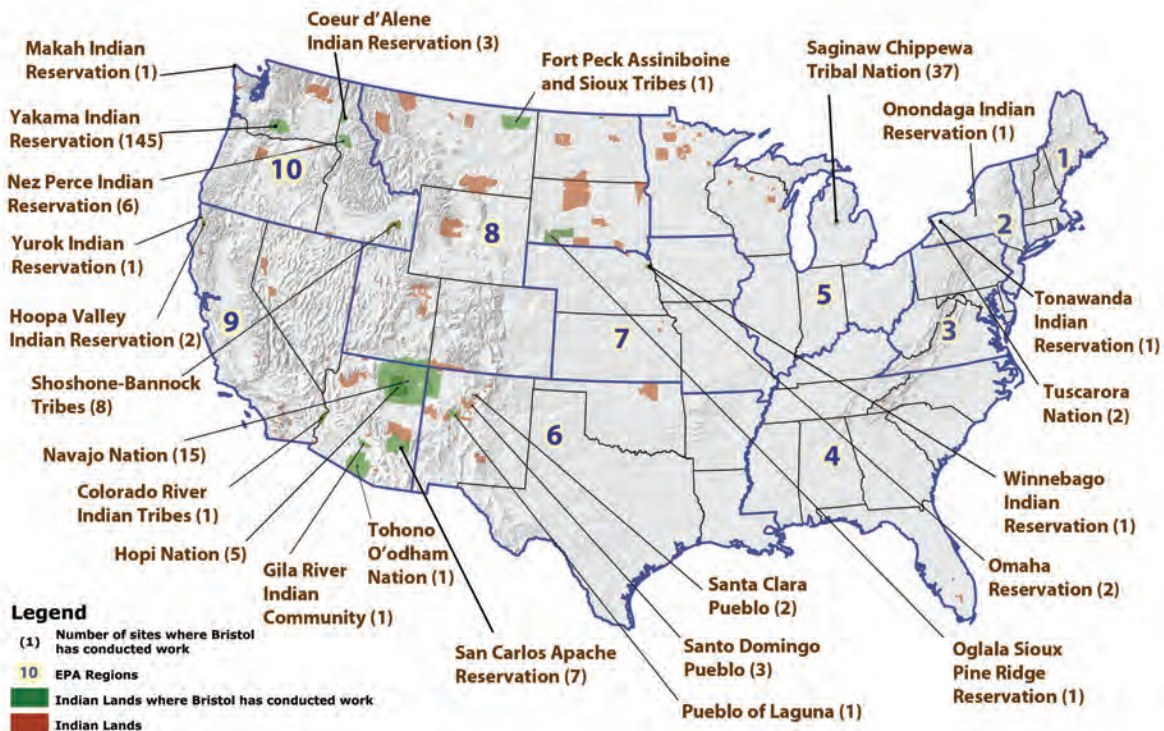
CUSTOMER CONTACTS:

Ms. Lynn DePont, EPA Program Manager, 703-603-7148 Ms. Joe Taylor, EPA Region 8 Program Manager, 303-312-6152

BRISTOL CONTACTS:

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Staff geologist Matt Faust and environmental scientist Eric Barnhill prepare soil samples on the Winnebago Reservation, Nebraska.

PROGRAM ACTIVITIES OVERVIEW

IDENTIFY POTENTIAL SITES FOR ASSESSMENT

- Incorporate Tribal concerns, and
- Conduct file reviews and site visits.

CONDUCT ELIGIBILITY STUDIES

- Identify site owner and history, and
- Determine if site is eligible for the federally led EPA program.

PERFORM SITE ASSESSMENT

- Prepare plans (site assessment, sampling & analysis, and/or field sampling plans, as applicable)
- Identify and evaluate historical, archaeological and ecological conditions
- Collect soil and/or groundwater samples, removing USTs, if present, and
- Evaluate if a release occurred.

➔ **If a release did occur:**

CONDUCT SITE CHARACTERIZATION

- Install soil borings/monitoring wells, and
- Determine extent of contamination.

PREPARE A RISK-BASED DECISION DOCUMENT

➔ **If cleanup is required:**

EVALUATE REMEDIAL OPTIONS

IMPLEMENT SITE REMEDIATION

- Design and install system, and
- Implement monitoring.

analytical laboratories, tank removal services, waste disposal facilities, drilling companies, and remediation services companies. Subcontractors may also be used when requirements call for archaeological or cultural resource permits or clearances.

After more than eight years working with the EPA LUST program, Bristol has an intimate understanding of the EPA Site Assessment Program, tribal licensing, permits, Tribal Employment Rights Office (TERO) requirements, and the importance of hiring local tribe members. Our established relationships with tribal and EPA staff are allowing us to work together to achieve closeout of sites that have been abandoned for many years.

EVALUATION OF LUST-ELIGIBLE SITES

To be included in the tribal LUST program, each potentially abandoned underground storage tank (UST) site must be first identified, catalogued, and evaluated to determine if the site meets the eligibility criteria of the LUST Trust Fund. Potential sites are identified in a variety of ways: EPA may identify a potentially eligible site through EPA's UST database (USTRAC); tribes or individuals may request assistance from EPA; or EPA may request UST surveys.

Bristol evaluation activities included review of EPA UST files for about 200 sites in California, Nevada, and Arizona. In addition, Bristol has completed eligibility checklists for Tuscarora Reservation, New York; Nez Perce Reservation, Idaho; Saginaw Chippewa Tribal Nation, Michigan (37 sites); and Yakama Nation Indian Reservation, Washington (145 sites).

SITE ASSESSMENTS

The objectives of a site assessment are to evaluate the presence or absence of USTs, and evaluate if petroleum hydrocarbons were released into the soil and groundwater.

A geophysical survey may be conducted to identify the possible location of USTs, if unknown. To assess each site, USTs are typically removed to allow sampling beneath the tanks. Groundwater samples may be collected from nearby wells or from standing water in the excavations, or both. The USTs and all investigation-derived waste are removed for proper treatment, recycling, or disposal. The excavations are backfilled with clean soil, and the site is restored to pre-excavation conditions. Upon completion, all site activities are documented in a site assessment report.

If petroleum contamination is not encountered during the site assessment, the site is recommended for closure. At sites where petroleum hydrocarbon releases have been confirmed, additional investigative activities may occur. To date, 36 sites have been closed, and the remaining sites are either undergoing additional characterization or corrective action.

Bristol has conducted site assessments on the following:

- **Arizona:** On the Tohono O'odham and Navajo nations, and on San Carlos Apache and Hopi reservations
- **Idaho:** On the Coeur d'Alene and Nez Perce reservations, and on the Fort Hall Reservation of the Shoshone-Bannock Tribes
- **New Mexico:** On the Pueblo of Laguna and Santo



- Domingo Pueblo, and on Navajo Nation lands
- **New York:** On Tonawanda-Seneca Nation lands and on the Tuscarora Reservation
- **Washington:** On the Makah Reservation.

Site assessments planned for 2009 include one site on the Yurok Reservation, two sites on the Hoopa Reservation, California, and additional sites as determined by EPA.

SITE CHARACTERIZATION

Site characterization is conducted after the site assessment has confirmed the release of petroleum hydrocarbons. The objectives of site characterization are to characterize the extent and type of LUST contamination, to assess the potential that contaminants will migrate to surrounding areas, and to collect sufficient data in order to make recommendations.

To assess the extent and type of contamination, soil borings and groundwater monitoring wells may be installed and sampled.

If contamination has migrated beneath buildings, soil gas samples may be collected. If the release is suspected to have impacted nearby surface waters, surface water or sediment samples may be collected. Upon completion, all activities are documented in a site characterization report.

Bristol has conducted site characterizations at the following:

- **Arizona:** Arizona Traders, on Gila River Indian Community (GRIC) lands; Telles Ranch, on the Colorado River Indian Tribe Reservation (CRIT); and three sites—Davis Chevrolet, Former Amoco and Old Leupp Trading Post—on Navajo Nation lands.
- **Idaho:** Bovey Oil Company, on the Nez Perce

Reservation, and St. Maries Oil Company, on the Coeur d'Alene Indian Reservation.

- **Nebraska:** Former Skelly Station, on the Winnebago Reservation.
- **New Mexico:** Santo Domingo Trading Post, on the Santo Domingo Pueblo; JB Oil Site, on the Santa Clara Pueblo; Paraje Trading Post, on the Pueblo of Laguna; and four sites—Bond & Bond, White Eagle, Chief Conoco, and Kirk Store—all on Navajo Nation lands.

Site characterizations are planned in 2009 for the following sites located on the Navajo Nation: Painted Desert Inn and Sweetwater Trading Post in Arizona, and Newcomb Trading Post in New Mexico. Additional sites include the Silas Hoyungowa site on the Hopi Reservation and other sites as determined by EPA.

RISK-BASED DECISION DOCUMENTS

Because EPA's UST corrective actions are aimed at protecting human health and the environment, risk-based decision-making is often incorporated into the corrective action process. Risk-based decision-making is a mechanism for identifying necessary and appropriate action throughout the corrective action process. The outcome is usually called a risk-based corrective action (RBCA).

Bristol prepared an RBCA document for the Paraje Trading Post on the Pueblo of Laguna, New Mexico, and Tier I assessment reports for six potential LUST sites on both the Winnebago and Omaha reservations, Nebraska; and conducted reviews of decision documents for Tier I assessments for 24 sites on the Omaha Reservation in Walthill, Nebraska.



This 10,000-gallon tank was one of three USTs removed during a site assessment at Valero Asphalt, on the Santo Domingo Pueblo, New Mexico.

CORRECTIVE ACTIONS

Depending on known or anticipated risks to human health and the environment, corrective actions may include site closure, monitoring and data collection, active or passive remediation, contaminant removal, or institutional controls. In all cases, the objective is the same: to ensure adequate protection of human health and the environment.

Corrective actions performed by Bristol on active LUST sites have included the following:

Removal and destruction or disposal of contaminants and wastes:

- More than 1,000 cubic yards of petroleum and lead-contaminated soil from 12 sites were removed and disposed of at landfills.
- Free product was removed from groundwater multiple times in 2007 from the Chief Conoco and White Eagle sites on the Navajo Nation in New Mexico.

Land farming petroleum-contaminated soil

- Petroleum-contaminated soil excavated during site assessment activities at the Bovey Oil Company site was landfarmed on nearby property.

Bench-scale treatability and pilot studies:

- Bench-scale surfactant flush treatability tests were performed on soil from the Telles Ranch site, CRIT, Arizona, and at the Pueblo of Laguna site in New Mexico.
- A pilot study for an air-sparge/soil vapor extraction (AS/SVE) system was performed at the Arizona Traders site, GRIC, Arizona.
- Pilot studies, including SVE, groundwater extraction, multi-phase extraction, and dual-phase extraction of groundwater with product removal were performed at the Davis Chevrolet site on the Navajo Nation, Arizona.
- SVE pilot studies were performed at the Former Amoco and the Old Leupp Trading Post sites on the Navajo Nation, Arizona.
- AS/SVE pilot studies were performed at the White Eagle and Chief Conoco sites on the Navajo Nation, New Mexico.

Remedial system design, construction, operation, and monitoring:

- An SVE system was installed in 2005 and is currently in operation at Arizona Traders, GRIC, Arizona.
- A groundwater extraction with product-recovery system will be installed in 2009 at Davis Chevrolet, on the Navajo Nation, Arizona. The extracted groundwater will be treated to drinking water standards and discharged, and the recovered product will be removed and reused as fuel.
- A product recovery system was installed in 2008,

- utilizing existing wells, at Telles Ranch, CRIT, Arizona.
- A dual-phase extraction system was recommended for the Chief Conoco site, on the Navajo Nation, New Mexico. Installation is underway, to be completed in 2009.
- An AS/SVE system was recommended for the White Eagle site, Navajo Nation, New Mexico. Installation is underway, to be completed in 2009.
- A bio-venting remedial system will be installed in 2009 at the Former Amoco site, Navajo Nation, Arizona.

ADDITIONAL EPA SUPPORT

Examples of additional technical support provided by Bristol to the EPA include:

Oversight and Enforcement of LUSTs:

- **Financial Audits** – Single audit reports were reviewed for the Assiniboine and Sioux tribes of the Fort Peck Reservation, Montana, to estimate the tribes' "ability to pay" for the cleanup of release(s) to the environment.
- Oversight of "responsible party" work and collection of split samples was performed on the CRIT reservation and Navajo Nation.

Outreach Materials:

- **Fact Sheets** – Multiple fact sheets have been generated for Region 9 describing different aspects of the work conducted or site-specific information.
- **Posters** – Posters and other public outreach materials are generated each year for EPA to present at the National Tanks Conference.
- **Media campaigns** – A media campaign was initiated in 2008 to notify the public of the EPA-sponsored Yakama Nation abandoned tank project. The campaign provided information about the project, including contact information to report USTs or ask questions about EPA's LUST Trust Fund program. All media materials (newspaper ads, radio public service announcements, and flyers) were approved by EPA and Yakama Nation.
- **Presentations** – Multiple PowerPoint presentations describing proposed remedial actions have been made to EPA and tribal representatives for sites in EPA Region 9. Bristol has attended tribal council meetings with an EPA representative in several regions for various tribes.



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